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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Yoshio Katsuda

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EXAMINER

JOYNER, KEVIN

ART UNIT

PAPER NUMBER

1773

NOTIFICATION DATE

DELIVERY MODE

10/14/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/590,434	Applicant(s) KATSUDA ET AL.	
	Examiner KEVIN C. JOYNER	Art Unit 1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

FINAL ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Courbon (U.S. Patent No. 3,765,155) in view of Bolduc (U.S. Publication No. 2003/0205137).

Courbon discloses a chemical volatilization device comprising:

A chemical retainer (4);

A protective case (1) that houses the chemical retainer (Figure 6); and

A rotary drive device (3);

The protective case comprising:

An upper portion (22 & 26) and a lower portion (numeral 5; Figures 1 and 6);

A plurality of retaining frames (defining orifices 10) surrounding the outer circumference of the chemical retainer (Figure 8); and

A bearing (the support and guide for a rotating shaft; 6) in the center of the protective case that is able to engage with a rotating shaft (shown below bearing in Figure 6) of the rotary drive device; and

Wherein the rotary drive device rotates an upper portion and a lower portion of the protective case, and the chemical retainer as a single unit (column 3, lines 19-40; column 4, line 65 to column 5, line 10; Figures 5 and 6). More specifically, the foam filter of Courbon is capable of retaining a chemical and is therefore a chemical retainer (column 3, lines 13-20). Courbon does not appear to disclose that the apparatus comprises a mesh constituent unit or that the chemical retainer comprises a plurality of chemical retaining fibers in the form of a regular mesh with individual mesh units in two dimensional directions on both an upper and lower side of the chemical retainer, and a plurality of supportive chemical retaining fibers arranged between the chemical retaining fibers, which are located on the upper and lower sides of the chemical retainer and connect the chemical retaining fibers on both the upper and lower sides in the mesh constituent unit as a result of having bending elasticity.

Bolduc discloses a chemical volatilization device comprising a chemical retainer (Figures 1, 4 and 6-9) made of fibers and a mesh constituent unit as well as a protective case (26) that houses the chemical retainer (paragraphs 15-18). The reference continues to disclose that the chemical retainer comprises a plurality of chemical retaining fibers (14 & 16) in the form of a regular mesh with individual mesh units (Figures 1 and 9) in two dimensional directions on both an upper and lower side of the chemical retainer, and a plurality of supportive chemical retaining straight fibers (20 and 34) arranged between the chemical retaining fibers, which are located on the upper and lower sides of the chemical retainer and connect the chemical retaining fibers on both the upper and lower sides regularly according to the mesh constituent unit as a result of

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having bending elasticity in order to secure a chemical retainer within a chemical volatilization device and produce an immobilization network that inhibits the growth and kills microbes in air (paragraphs 42-46; paragraphs 54-56). More specifically, the chemical retaining fibers (14 & 16) are a woven fabric (paragraph 54) that is provided with a first set of a plurality of strands in a first direction and a second set of a plurality of strands in a second direction that is perpendicular to the first direction. Thus, the chemical retainer is provided with a plurality of chemical retaining fibers in the form of a regular mesh in two directions on both the upper and lower sides of the chemical retainer. The supportive chemical retaining fibers (20 and 34) are located between the chemical retaining fibers and connect said chemical retaining fibers on both the upper and lower sides (Figure 9) in the mesh constituent unit (the mesh constituent unit being a unit that composes or makes up the chemical retainer as broadly defined), wherein said supportive fibers are made of a material having a bending elasticity (paragraphs 44-46), wherein each individual mesh unit (44) will separately move during the passage of air. As such, the limitations are met with respect to Bolduc.

Concerning claim 3, Bolduc also discloses that the supportive chemical retaining straight fibers form a columnar structure as a result of the fastening means (46), which arranges each unit of supportive chemical retaining fibers in a roughly parallel vertical direction (Figure 9). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the chemical retainer of Courbon to include a chemical retainer made of a mesh constituent unit that comprises a plurality of chemical retaining fibers in the form of a regular mesh with individual mesh units in two

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dimensional directions on both an upper and lower side of the chemical retainer, and a plurality of supportive columnar structured chemical retaining fibers arranged between the chemical retaining fibers, and connect the chemical retaining fibers on both the upper and lower sides in the mesh constituent unit as a result of having bending elasticity, wherein said individual mesh units will separately rotate during operation of the rotary drive device in order to secure a chemical retainer within a chemical volatilization device and produce an immobilization network that inhibits the growth and kills microbes in air as exemplified by Bolduc. Concerning claim 10, Bolduc also discloses small gap chemical retaining fibers (paragraph 43; Figure 9), which have a smaller gap than the chemical retaining fibers (14 and 16), and which are connected to the chemical retaining fibers on both sides, and are arranged between the chemical retaining fibers on the upper and lower sides (Figures 1 and 9). As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the chemical retainer of Bolduc comprising small gap chemical retaining fibers, which have a smaller gap than the chemical retaining fibers, and are connected to the chemical retaining fibers on both sides, arranged between the chemical retaining fibers on the upper and lower sides in the device of Courbon in order to secure a chemical retainer within a chemical volatilization device and produce an immobilization network that inhibits the growth and kills microbes in air as exemplified by Bolduc.

With regard to claim 11, Courbon in view of Bolduc does not appear to disclose a plurality of chemical retainers consisting of chemical-retaining fibers arranged on the upper and lower sides and the supportive chemical retaining straight fibers arranged

therebetween are overlapped. However, The Manual of Patent Examining Procedures discloses that in *In re Harza*, 274, F.2d 669, 124 USPQ 378 (CCPA 1960), a mere duplication of parts for a multiplied effect has no patentable significance unless a new and unexpected result is produced (See MPEP 2144.04). Therefore, the claimed plurality of chemical retainers is not patentably distinct from Courbon in view of Bolduc.

Furthermore, Claim 12 requires that the distance between the chemical retaining mesh fibers on both sides is 1.0 to 10.0 mm. It would have been well within the purview of one of ordinary skill in the art to optimize the distance of the chemical- retaining mesh fibers in order to maximize the efficiency and effectiveness of the purification process. Only the expected results would be attained. With regard to claim 13, Courbon continues to disclose that the protective case surrounds the upper and lower sides of the chemical retainer with an upper portion (22) and a lower portion respectively (Figures 1 and 4).

3. Claims 4-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Courbon (U.S. Patent No. 3,765,155) in view of Bolduc (U.S. Publication No. 2003/0205137) as applied to claim 1 above, and further in view of D'Amico et al. (U.S. Publication No. 2006/0110297).

Concerning claims 4-9, Courbon is relied upon as set forth above. Courbon does not appear to disclose supportive chemical retaining straight fibers that form a diagonal structure as a result of being arranged to intersect on an angle in the vertical direction, wherein the diagonal structure is formed so as to connect apices together located on

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the same side, and opposite sides, based on all four directions in the mesh unit corresponding to upper and lower sides. D'Amico discloses a chemical volatilization device comprising a chemical retainer (10) made of fibers comprising chemical retaining fibers (as shown in Figure 12) and supportive chemical retaining straight fibers (13 & 82) located on the upper and lower sides of the chemical retainer (paragraphs 56 and 65-67). The reference continues to disclose that the supportive chemical retaining straight fibers form a diagonal structure as a result of being arranged to intersect on an angle in the vertical direction, wherein the diagonal structure is formed so as to connect apices together located on the same side, and opposite sides, based on all four directions in the mesh unit corresponding to upper and lower sides, and further discloses supportive chemical retaining straight fibers forming a columnar structure by being arranged roughly in parallel in a vertical direction (Figure 12) in order to create a larger surface area for said fibers with a contaminated fluid (paragraphs 19 and 20). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the chemical retainer of Courbon to utilize the supportive chemical retaining straight fibers in a diagonal structured direction as a result of being arranged to intersect on an angle in the vertical direction, wherein the diagonal structure is formed so as to connect apices together located on the same side, and opposite sides, based on all four directions in the mesh unit corresponding to upper and lower sides as well as a columnar structure by being arranged roughly in parallel in a vertical direction in order to maximize the surface area for said fibers with a contaminated fluid to ultimately reduce contaminants in the fluid as exemplified by D'Amico.

Response to Arguments

4. Applicant's arguments filed July 27, 2010 have been fully considered but they are not persuasive.

Applicant's principle arguments are:

a) Contrary to the assertion made by the Office Action, the first and second screens 14 and 16 of Bolduc do not constitute a plurality of chemical-retaining fibers that are connected by supportive chemical retaining straight fibers, as recited in claim 1. Instead, the air filter of Bolduc comprises a mesh of fibers 20 (that the Office Action asserts corresponds to the supportive chemical retaining fibers recited in the claims) located between a set of optional screens 14 and 16, which merely serve to define a work area (Bolduc, paragraph [0042]). Therefore, unlike the chemical volatilization device recited in the claims, Bolduc's mesh of fibers 20 does not connect the chemical-retaining fibers on the upper and lower sides regularly, as recited in claim 1.

The chemical retainer is shown in Figures 1 and 9. If the chemical retainer is split in half to produce an upper side and lower side, then it is obvious that the plurality of supportive chemical retaining fibers (12) will be located on both the upper and lower sides of the chemical retainer. As shown clearly in Figure 9 as well, the plurality of supportive chemical fibers (12) come in to contact with both the plurality of chemical retaining fibers on both the upper side (14) and the lower side (16). Therefore, the supportive chemical retaining fibers are arranged between the chemical retaining fibers (14 & 16), and connect the chemical retaining fibers on both the upper and lower sides

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due to the supportive chemical retaining fibers touching the chemical retaining fibers on both the upper and lower sides.

b) Further supported by Figure 1 of Bolduc, no mesh fibers 20 are present on either the upper side of screen 14, or the lower side of screen 16.

The claims as currently set forth disclose that the supportive chemical retaining fibers **are located on the upper side of the chemical retainer**, not on the upper side of the chemical retaining fibers. Thus, Bolduc meets these limitations

c) Furthermore, the mesh fibers 20 of Bolduc are not straight mesh fibers, as recited in claim 1, but instead are arranged as a fine layer of "so-called angels hair, of flaky mesh, or the like" (Bolduc, paragraph [0043]).

As broadly defined, the definition of "straight" is continuous. In this respect, each supportive fiber is continuous, producing a plurality of continuous supportive fibers. Furthermore, a set of filter fibers such as the ones disclosed in Bolduc will intrinsically comprise a plurality of straight fibers (although they may be minimal in the grand scheme of all the fibers in the plurality of supportive fibers), which also meets the limitations of the claim.

d) In addition, the fastening means 46 of Bolduc also cannot correspond to the supportive chemical retaining fibers recited in the claims.

The fastening means are not relied upon for the supportive chemical retaining fibers. Mesh (20) is relied upon for the supportive chemical retaining fibers.

e) The small gap chemical retaining fibers recited in claim 10 are in the form of a regular mesh in two-dimensional directions. However, Bolduc's mesh of fibers 20 have no regular form and are not connected to the chemical retaining fibers (that the Office Action asserts corresponds to Bolduc's optional screens 14 and 16). Thus, Bolduc's mesh of fibers 20 does not disclose, and would not have rendered obvious, each and every feature of claim 10.

The small gap chemical retaining fibers are the stitches (46) as shown in Figures 7 and 9. As shown in the Figures, said fibers are in the form of a regular mesh in two dimensional directions with individual mesh units (Figure 7) and are connected to the chemical retaining fibers (14 & 16). Therefore, they meet the limitations of the claim. Furthermore, Bolduc discloses interwoven yarn in the supportive chemical retaining fibers (paragraph 43). This yarn is part of the mesh (12) as shown in Figure 9, wherein it is clearly shown that the mesh is a regular mesh in two-dimensional directions with individual mesh units (created by stitches 46), which will connect to the chemical retaining fibers and have a smaller gap than said chemical retaining fibers. As such, the limitations are met in this respect as well.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEVIN C. JOYNER whose telephone number is (571)272-2709. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KCJ

/Sean E Conley/
Primary Examiner, Art Unit 1773